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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/679,948	10/06/2003	Shuichi Tanaka	9319G-000571	3597

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EXAMINER	
KIM, PAUL D	

ART UNIT	PAPER NUMBER
3729	

DATE MAILED: 06/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	**Application No.** 10/679,948	**Applicant(s)** TANAKA, SHUICHI	
	Examiner Paul D. Kim	**Art Unit** 3729	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 May 2006*.
2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☐ Claim(s) *1,2,4,5 and 8-13* is/are rejected.
7)☒ Claim(s) *3,6 and 7* is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a)☐ All b)☐ Some * c)☐ None of:
1.☐ Certified copies of the priority documents have been received.
2.☐ Certified copies of the priority documents have been received in Application No. _____.
3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This office action is a response to the amendment filed on 5/12/2006.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 2, 4, 5 and 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chiu (US PAT. 5,257,718).

Chiu teaches a process of folding a printed circuit board comprising steps of: defining at least a display area (61), an extension area (a dashed line), and an IC mounting area (62) on a display substrate (60) as shown in Fig. 2; connecting a flexible tape substrate (70) to the extension area of the display substrate; forming a cur substrate by cutting the display substrate (at the dashed line) at a cutting portion that is partially disposed under the flexible tape substrate on the extension area of the display substrate as shown in Fig. 5; and disposing the cut substrate on a back side of the display substrate, the back side being opposite to a front side where the display area is defined as shown in Fig. 4 (see also col. 2, lines 41-68).

However, Chiu fails to teach the display substrate constituting a part of one of a liquid crystal device, an organic electro luminescence device and a plasma device. Instead, the foldable printed circuit board of Chiu can be used in various kinds of product of small dimensions (col. 1, lines 24-26). At the time the invention was made, it would have been an obvious to a person of ordinary skill in the art to apply the foldable printed circuit board to the liquid crystal device, the organic electro luminescence device and the plasma device as recited in the claimed invention because Applicant has not disclosed that the devices as recited in the claimed invention provides an advantage, is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with the foldable printed circuit board of Chiu because the devices as recited in the claimed invention would perform equally well with using the foldable printed circuit board of Chiu. Therefore, it would have been an obvious to modify the foldable printed circuit board of Chiu to obtain the invention as specified in claim 1.

As per claim 2 the IC mounting area is defined on a part of the display substrate that is to become the cut substrate and a driving circuit (one of a plurality of circuits mounted on the IC mounting area) is mounted on the IC mounting area by COG bonding before the cutting of the display substrate. Even though Chiu fails to teach the display substrate made of glass, it is well known in the art to use dielectric material (such as glass as recited in the claimed invention) for producing a printed circuit board.

As per claim 4 a plurality of parallel wirings (as shown in Fig. 2) is formed on a front side and the extension area of the display substrate before the cutting.

As per claim 5 the flexible tape substrate (70 as shown in Fig. 5) is connected to the extension area of the display substrate in such a manner that one end of the flexible tape substrate is connected to a part of the display substrate which is to become the cut substrate, and the other end of the flexible tape substrate is connected to another part of the display substrate which is different than the part which is to become the cut substrate as shown in Figs. 4 and 5.

As per claim 8 the flexible tape substrate is in a state of bent as shown in Fig. 5 when the flexible tape substrate is connected to the extension area of the display substrate.

As per claim 9 an area (67, 68 as shown in Fig. 3) of which width is twice or more of the thickness of the display substrate is removed from the extension area when the display substrate is cut.

As per claim 10 a groove (67, 68 as shown in Fig. 3) is cut at the cutting portion on the display substrate before the cutting, wherein the cutting is carried out by applying a force that tend to bend the display substrate on the display substrate after the groove is formed as shown in Fig. 4.

As per claim 11 terminals on the wirings on the extension area of the display substrate are formed and inspected a circuit operation by using the terminals before the cutting.

3. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chiu in view of Tamanoi (US PAT. 5.565.885).

Chiu teaches all of the limitations as set forth above except wirings formed of a transparent electrode. Tamanoi teaches a process of making a display device such that transparent wirings are used on a display panel (or printed circuit board) in order to perform a display operation (see col. 1, lines 16-26). Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify wirings of Chiu by transparent wirings as taught by Tamanoi in order to perform a display operation.

4. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Soloway et al. in view of Yamazaki (US PAT. 5.362,547).

Chiu teaches all of the limitations as set forth above including grooves formed by drill, not a laser. Yamazaki teaches a process of making electrical device including a process of forming a groove (17 as shown in Fig. 2) on a printed circuit board by laser (see col. 3, lines 6-8) in order to produce the groove in a high precision. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify fabricating process for forming grooves of Chiu by the laser as taught by Yamazaki in order to produce the groove in a high precision.

Allowable Subject Matter

5. Claims 3, 6 and 7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

6. Applicant's arguments with respect to claims 1-13 have been considered but are moot in view of the new ground of rejection.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul D. Kim whose telephone number is 571-272-4565. The examiner can normally be reached on Monday-Friday between 6:00 AM to 2:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Paul D Kim
Primary Examiner
Art Unit 3729